TABLE 2.—*Free-air resultant winds (m. p. s.) during November, 1926*

Altitude, (m.)	Broken Arrow, Okla (233 meters)				Due West, S. C. (217 meters)				Ellendale, N. Dak. (444 meters)				Groesbeck, Tex. (141 meters)				Royal Center, Ind. (225 meters)				Washington, D. C. (34 meters)	
	Mean		9-year mean		Mean		6-year mean		Mean		9-year mean		Mean		9-year mean		Mean		9-year mean		Mean	
	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.
Surface	S. 43° W.	1.6	S. 42° W.	1.5	S. 42° W.	1.2	N. 81° W.	0.6	N. 17° W.	3.0	N. 50° W.	2.3	S. 62° W.	1.2	N. 72° E.	0.1	S. 37° W.	3.1	S. 47° W.	2.2	N. 61° W.	1.8
250	S. 41° W.	1.7	S. 40° W.	1.6	S. 40° W.	1.2	N. 83° W.	0.7					S. 24° W.	2.4	N. 46° W.	0.6	S. 36° W.	3.6	S. 51° W.	2.8	N. 72° W.	3.2
500	S. 89° W.	1.6	S. 40° W.	2.3	S. 49° W.	1.9	S. 88° W.	1.3	N. 25° W.	2.8	N. 59° W.	2.6	S. 33° W.	4.5	S. 4° E.	1.6	S. 37° W.	6.6	S. 56° W.	5.4	N. 73° W.	4.9
750	S. 49° W.	2.9	S. 42° W.	3.3	S. 51° W.	2.7	W.	1.9	N. 32° W.	4.0	N. 60° W.	4.1	S. 32° W.	5.5	S. 24° W.	2.2	S. 43° W.	8.0	S. 61° W.	6.7	N. 74° W.	5.9
1,000	S. 70° W.	4.3	S. 55° W.	4.0	S. 55° W.	4.0	S. 85° W.	2.7	N. 37° W.	4.6	N. 64° W.	4.9	S. 53° W.	5.7	S. 44° W.	2.9	S. 54° W.	8.6	S. 69° W.	7.3	N. 75° W.	6.8
1,250	S. 80° W.	5.8	S. 64° W.	4.8	S. 70° W.	6.1	W.	4.1	N. 40° W.	5.4	N. 65° W.	5.9	S. 61° W.	5.8	S. 57° W.	3.5	S. 61° W.	7.8	S. 72° W.	7.5		
1,500	N. 85° W.	6.9	S. 72° W.	5.5	S. 67° W.	7.0	S. 88° W.	5.4	N. 40° W.	6.8	N. 62° W.	7.0	S. 76° W.	6.4	S. 69° W.	4.1	S. 67° W.	9.0	S. 77° W.	8.7	N. 79° W.	8.5
2,000	N. 75° W.	8.1	S. 79° W.	6.9	S. 71° W.	8.5	S. 86° W.	7.5	N. 41° W.	8.2	N. 64° W.	8.7	S. 89° W.	7.0	S. 81° W.	5.4	S. 81° W.	10.1	S. 83° W.	10.0	N. 84° W.	10.7
2,500	N. 67° W.	9.5	S. 85° W.	7.6	S. 84° W.	10.7	S. 87° W.	9.1	N. 38° W.	11.1	N. 64° W.	10.9	S. 83° W.	10.0	S. 84° W.	7.2	S. 80° W.	11.6	S. 84° W.	11.7	S. 83° W.	11.4
3,000	N. 64° W.	12.0	S. 86° W.	8.7	S. 86° W.	14.5	S. 84° W.	10.5	N. 49° W.	13.6	N. 67° W.	12.8	N. 68° W.	13.0	S. 87° W.	8.8	N. 85° W.	12.6	N. 88° W.	13.0	S. 83° W.	15.1
3,500	N. 60° W.	14.4	S. 87° W.	9.4	W.	14.5	S. 85° W.	11.8	N. 63° W.	16.2	N. 66° W.	13.9	S. 68° W.	16.1	S. 75° W.	10.5	S. 87° W.	15.1	N. 85° W.	13.4	S. 78° W.	15.6
4,000	W.	12.0	S. 84° W.	10.6					N. 63° W.	15.1	N. 66° W.	13.5	W.	16.0	S. 72° W.	8.6	N. 71° W.	15.9	N. 87° W.	13.0	S. 90° W.	17.6
4,500	W.	13.9	N. 84° W.	10.6					N. 74° W.	20.6	N. 62° W.	15.8	W.	17.0	S. 69° W.	10.7	W.	12.0	S. 84° W.	13.0	N. 83° W.	18.4
5,000	S. 68° W.	16.0	S. 73° W.	11.9													W.	11.0	W.	15.5	N. 88° W.	21.8

THE WEATHER ELEMENTS

By P. C. DAY, In Charge of Division

PRESSURE AND WINDS

The first week was moderately free from important cyclonic or anticyclonic movements in any part of the country, and this condition continued in the more western districts until the close of the first decade.

By the morning of the 8th, however, a cyclone of slight intensity, that had moved from the far Northwest, reached central Oklahoma and had developed into a well-defined storm. This moved to the Great Lakes and lower St. Lawrence Valley during the following 48 hours, attended by widespread precipitation from the Mississippi Valley eastward, with heavy rains in the Gulf States, Ohio Valley, and North Atlantic States and more or less snow or sleet in the lake region and to eastward.

In connection with this cyclone numerous thunderstorms occurred on the afternoon of the 9th over the southeastern and eastern States, and a small, but severe, tornado occurred at La Plata, Md., causing the death of 17 persons, mostly children, when a schoolhouse was blown to pieces, injuring a number of others, and destroying a number of houses and other property. (See p. 462, this REVIEW.)

At the beginning of the second decade low pressure developed over the North Pacific coast attended by precipitation, which gradually extended over all parts of the coast, and became heavy in northern California and over the coast districts of Oregon and Washington.

With a short return to anticyclonic conditions over this area about the middle of the month, rainy conditions again overspread the far Northwest and continued without material breaks till the end of the month, the precipitation area extending frequently to all parts of the coast States, with local heavy rains at the lower elevations and some heavy snows in the mountains.

In the districts from the Rocky Mountains eastward, an important cyclone moved from the middle Plains to the upper Lakes on the 13th to 15th, and with secondary formations the precipitation area was extended to nearly all eastern districts during the following two days. Heavy rains occurred in connection with this cyclone over the upper Mississippi Valley, portions of the Gulf States, Ohio Valley, and to the northeastward.

Immediately following the storm referred to above, another, having its origin in the far Northwest, crossed the Rocky Mountains about the 16th and moved southeastward to central Texas, and thence to central Arkansas during the following 24 hours, but without material precipitation. From Arkansas the storm moved northward to the Great Lakes during the following 48 hours, and, as in that just preceding, a secondary LOW developing to the eastward caused precipitation, mostly light, over practically all central and eastern districts, light snows occurring over the more northern sections.

The latter half of the month was mainly free from cyclonic disturbances from the Rocky Mountains eastward until the 25th, when a cyclone of wide extent, an offshoot from the general low-pressure area in the extreme Northwest, was central over eastern Colorado, and moved rapidly to the Great Lakes and lower St. Lawrence Valley during the 26th and 27th. This storm was attended by thunderstorms over wide areas on these dates, and several distinct tornadoes occurred during the late evening of Thanksgiving day in the lower Mississippi Valley, notably in Arkansas, Louisiana, Mississippi, and Missouri, when a considerable number of lives were lost and much damage to property occurred. A more complete history of these tornadoes appears on p. 466 in this issue. Moderate precipitation from this storm occurred from the Mississippi River eastward, some sleet and glaze in the upper Lake region and more or less snow in all northern districts from the Dakotas eastward.

The last day of the month brought considerable precipitation over the Atlantic coast and middle Gulf States and about the same time over the Pacific coast from north-central California to Washington heavy precipitation occurred. A fall of over 5 inches at Eureka, Calif., on the 29th and 30th established a new record of heavy rainfall for November at that place.

Anticyclones were mainly of only moderate intensity, though that moving southward from Manitoba about the 9th and drifting slowly southeastward during the following few days, caused sharp falls in temperature as it advanced eastward and dominated the weather over the eastern half of the country for several days.

A moderate anticyclone, moving along the northern border from the 26th to 28th, was attended by sharp falls in temperature as it advanced eastward and by the coldest weather of the month over the northern districts from Minnesota to New England.

The average pressure reduced to sea level was highest over the Southeastern States, where it was slightly above normal, and lowest in the far Northwest where it was materially lower than normal. In general, pressure was above normal over the Atlantic and Gulf States, in the far Southwest, and over the upper Missouri Valley and adjacent Provinces of Canada, and below in other areas.

Compared with October, the average pressure was lower only in the far Northwest, otherwise it was higher in all parts of both the United States and Canada, a condition not unusual though the increases over October were materially greater than usual.

Important wind storms were confined mainly to the Lake region and eastern coast districts, to the North Pacific coast States during the latter half of the month, and to the lower Mississippi Valley and near-by areas on the 25th where several tornadoes of considerable importance occurred. The details concerning these will be found in the table on severe local storms at the end of this section.

TEMPERATURE

Important temperature changes were confined mainly to a few dates, notably the 9th and 10th over the districts from the Mississippi River eastward, 20° to 30° colder, and during the 26th to 29th, when sharp rises and falls ranging from 20° to 40° in 24 hours occurred in quick succession over the districts from the Rocky Mountains eastward.

The first week was decidedly cold in the central Gulf districts and near normal in other portions of the country east of the Rocky Mountains. To the westward the week was mainly warmer than normal. The week ending the 16th was generally colder than normal over the central valleys and Southern and Southeastern States, decidedly so in the lower Mississippi Valley and middle Gulf States where the negative departures ranged from 6° to 9°. Over most western districts and in the Northeastern States this week was mainly warmer than normal. The third week was decidedly cold over the greater part of the country, particularly from Montana and the Dakotas southeastward to the Carolinas and Georgia where the weekly averages ranged from 9° to 15° below the normal. Over a small area in the Northeast and in most districts west of the Rocky Mountains, save Wyoming, Montana, Idaho, and eastern Washington, the averages were above normal, materially so in the middle Plateau and near-by areas. The last week was mainly decidedly warmer than normal in all districts save from Montana eastward to the upper Lakes, where it continued cold as during the preceding week.

The month as a whole was warmer than normal from the Rocky Mountains westward, and over the Northeastern States and in the adjacent Canadian Provinces. In the far West it was a decidedly warm month, in some cases as warm as any previous November. In portions of the Northeastern States it was the first month since January with temperature averages above normal.

Over the interior valleys, South Atlantic and Gulf States the month was decidedly cold, the averages ranging up to 5° or more per day below normal. In the Gulf States the month was cold nearly throughout, only a few days during the latter part having temperatures appreciably above the normal.

The warmest periods were usually during the first week from the upper Lakes westward and southwestward to the Pacific coast and in portions of the Gulf States. Elsewhere they occurred on widely scattered dates.

The coldest periods were rather widely scattered, but mostly during the latter half, about the 15th to 22d over much of the territory west of the Mississippi River and in portions of the Ohio Valley and some Gulf and Eastern States, and from the 26th to 28th at points along the northern border from North Dakota eastward.

PRECIPITATION

Considering the precipitation by States nearly all had averages in excess of the normal, only eight showing averages below normal. In general, the excesses were fairly large as compared with the normal and the deficiencies were mainly comparatively small, so that for the country as a whole the precipitation was generous and well above normal, only small areas going into the winter with depleted water supplies.

Over the Pacific Coast States the precipitation was mainly heavy to excessive, particularly in California, where the average for the State as a whole exceeded the normal by more than 5 inches, and it was the wettest November of record since state-wide observations of precipitation began.

The only extensive areas with precipitation below normal were the States from Arizona eastward to Texas and Arkansas, and in the immediate Ohio Valley. In all other sections only small areas had less than the normal precipitation.

SNOWFALL

Snow was rather widely distributed, but usually the amounts were not large and did not remain long on the ground, save in the higher mountain districts.

Unusually heavy snow for November occurred in central Illinois and near-by areas on the 17th and 18th, and locally in the lower Ohio Valley on the 20th and 21st.

Over the northern border States snowfall ranged up to 5 or 10 inches in New England and New York, from 15 to 30 inches in the upper Lake region, and from 5 to 10 inches from Illinois and Wisconsin westward to the foothills of Wyoming and Montana. In the Rocky Mountains the depths ranged from 10 inches or more in northern New Mexico, to 30 or 40 inches at high elevations in Colorado and Wyoming. In the northern Rocky Mountains the amounts were generally less, and in the Plateau the depths depended on elevation, very little falling at the lower levels. In the Cascades of Oregon and Washington there were some heavy falls, Crater Lake, Oreg., having a total of about 10 feet. In the Sierra Nevada there were local heavy falls on some of the highest mountains, but at the moderate elevations there was little snow at any time during the month.

RELATIVE HUMIDITY

The percentages of relative humidity, like the totals of precipitation, were mainly above the normal, except in the Southwest, in portions of the Ohio Valley and over much of the Gulf coast region. In portions of southern California the relative humidity was much below normal, despite the excess of precipitation, and similar conditions existed in some southeastern States.

The changes from normal save as indicated above were mainly small.